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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,305	KAPUT, JAMES	
	Examiner	Art Unit	
	/Bradley L. Sisson/	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *5-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 5-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 15 November 2005.

2. This application contains claims 5-15, which are drawn to an invention nonelected with traverse in the reply filed on 15 November 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4 and 16 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Attention is directed to the decision in *University of Rochester v. G.D. Searle & Co.* 68 USPQ2D 1424 (Fed. Cir. 2004) at 1428:

> To satisfy the written-description requirement, the specification must describe every element of the claimed invention in sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the claimed invention at the time of filing. Vas-Cath, 935 F.3d at 1563; see also Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572 [41 USPQ2d 1961] (Fed. Cir. 1997) (patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention"); In re Gosteli, 872 F.2d 1008, 1012 [10 USPQ2d 1614] (Fed. Cir. 1989) ("the description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed"). Thus, an applicant complies with the written-description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572.

5. For convenience, claims 1 and 16, the only independent claims under consideration on the merits, is reproduced below.

1. (Previously Presented) A method for identifying diet-regulated disease-associated polynucleotides comprising the steps of:

(i) selecting at least two different inbred known mammalian genotypes (A and B), one of these genotypes (A) being susceptible to a disease, and the other genotype (B) not susceptible to the same disease;

(ii) dividing each genotype into two groups (A1 and A2 and B1 and B2);

(iii) for each genotype, each group is fed a different diet (A1 is fed diet No.1 and A2 is fed diet No.2, and similarly for B1 and B2);

(iv) measuring gene expression and comparing expression across the strains that differ in either genotype or in diet, but not in both;

(v) analyzing the expression data so as to identify diet-regulated disease-associated genes.

16. (Original) A method for identifying diet-regulated disease-associated polynucleotides, the method comprising the following steps:

a) comparing gene expression between two inbred strains in response to different diets, wherein one inbred strain is susceptible to a disease and the other inbred strain is not susceptible to the disease,

b) identifying those differentially expressed polynucleotides that overlap with independently-derived diet-regulated QTLs, and

c) analyzing the data to identify diet-regulated disease-associated polynucleotides.

6. For purposes of examination, the method of at least claim 16 has been interpreted as encompassing the identification of "diet-regulated disease-associated polynucleotides" as found in any life form, be it plant or animal, including humans. In accordance with the claimed method, one is to select "at least two different inbred known genotypes." The specification has not been found to provide an adequate written description of any "two different inbred known genotypes" as they occur in a representative number of life forms, be they mammals (clam 1), much less any and all other life form (claim 16).

7. While one is to identify these polynucleotides on the basis of expression data, the specification fails to provide an adequate written description of how such polynucleotides, even if expressed differently, are in fact associated with a disease. Further, the specification does not provide an adequate written description as to how one would take into consideration such factors as gender, age, medications, radiation therapy, pregnancy, levels of exercise, as well as exposure to chemical or radiation stimuli, in determining whether an "inbred" individual has gene(s) that are diet-regulated disease-associated as compared to diet-regulated but not disease-associated.

8. Even if applicant were to identify such genes, the specification has not provided an adequate written description of just which of these genes are useful as compared to those that are not.

9. It appears that applicant is attempting to satisfy the written description requirement of 35 USC 112, first paragraph, through obviousness. Obviousness, however, cannot be relied upon for satisfaction of the written description requirement. In support of this position, attention is directed to the decision in *University of California v. Eli Lilly and Co.* (Fed. Cir. 1997) 43 USPQ2d at 1405, citing *Lockwood v. American Airlines Inc.* (Fed. Cir. 1997) 41 USPQ2d at 1966:

> Recently, we held that a description which renders obvious a claimed invention is not sufficient to satisfy the written description requirement of that invention.

Accordingly, and in the absence of convincing evidence to the contrary, the specification does not reasonably suggest that applicant was in possession of the invention at the time of filing.

10. The present case is analogous to that presented in Example 18 (pages 65-66) of the Written Description Guidelines (http://www.uspto.gov/web/menu/written.pdf). Unlike the example provided, the claims are not limited to a narrow genus that has been well described, but rather, fairly encompass a vast, if not limitless genus of not only life forms, and associated factors, not the least of which being the vast number of genes, wild type or not, the manner in which the diet is altered, the ability to control for non-tangible factors, e.g., stress. While the specification asserts that all factors can be and are to be controlled, the specification fails to provide an adequate written description of the broad genera of factors that the claims encompass.

11. When as here, the claims are so broadly drawn, and the specification does not teach an adequate number of embodiments of the genera encompassed, the specification does not reasonably suggest that applicant had possession of the invention at the time of filing.
For the above reasons, and in the absence of convincing evidence to the contrary, claims 1-4 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Response to argument

12. At pages 6-10 of the response received 15 August 2007, hereinafter the response, applicant traverses the rejection of claims as it relates to the written description requirement.

13. At page 6 of the response argument is presented that the claims do not encompass any and all manner of life forms, but rather, are limited to inbred mammals.

14. The above argument has been fully considered and has not been found persuasive as independent claim 16 does not recite any limitations as to the ancestry of the "inbred strain." Agreement is reached that claim 1 is limited to mammals that are inbred. However, the presentation of but a single example of where but a strain of inbred mice were used does not fully describe the 5,400 different species, 1200 genera, 153 families, and 29 orders that are encompassed the class *mammalia*. Further, there is no showing to what degree, if any, there is any correlation between the findings of the one strain of one species is correlative with that of any other species, much less any other genus, family, or order. While an applicant is not required to teach each and ever possible embodiment encompassed by the claims, the specification still must provide a full, clear, and concise description of the genus encompassed by the claims so that one would be readily able to determine if a species fell within the claims'

scope, and to also reasonably suggest that applicant had possession of the invention at the time of filing. Such written description has not been provided in the instant application. In support of this position, attention is directed to the decision in *In re Shokal*, 113 USPQ 283 (CCPA 1957) wherein is stated:

> It appears to be well settled that a single species can rarely, if ever, afford sufficient support for a generic claim. In re Soll, 25 C.C.P.A. (Patents) 1309, 97 F.2d 623, 38 USPQ 189; In re Wahlforss et al., 28 C.C.P.A. (Patents) 867, 117 F.2d 270, 48 USPQ 397. The decisions do not however fix any definite number of species which will establish completion of a generic invention and it seems evident therefrom that such number will vary, depending on the circumstances of particular cases. Thus, in the case of small genus such as the halogens, consisting of four species, a reduction to practice of three, or perhaps even two, might serve to complete the generic invention, while in the case of a genus comprising hundreds of species, a considerably larger number of reductions to practice would probably be necessary.
>
> ***
>
> We are of the opinion that a genus containing such a large number of species cannot properly be identified by the mere recitation or reduction to practice of four or five of them. As was pointed out by the examiner, four species might be held to support a genus, if such genus is disclosed in clear language; but where those species must be relied on not only to illustrate the genus but to define what it is, the situation is otherwise.

15. At page 7 applicant's representative states: "The method is based on statistically significant quantitative differences in disease susceptibility between two different genotypes (in this case, inbred mouse strains.)"

16. The above argument is not persuasive towards the withdrawal of the rejection as the claims do not require that the differences be statistically significant. Further, the claims are not limited to inbred mouse strains.

17. At page 8 of the response applicant's representative asserts, "the only variable being examined between the two species is diet and disease susceptibility. In all other respects the individual subjects are the same."

18. The above argument has not been found persuasive as the claims do not exclude other variables being present. Further, there is no requirement that the individuals of the two groups be the same in all other regards. Indeed, the use of the term "comprising" fairly opens the claims' scope to include additional method steps.

19. While the claim is to result in identifying comparisons of quantity of expression levels, there is no adequate showing as to how the level of expression relates to a diet-regulated gene. Simple differences in expression of genes can be due to other factors, not just diet. For example, the claim fairly encompasses using groupings that may differ in age and/or gender. Also, some of the test subjects may be pregnant, or lactating, while others are not. Further still, some of the test subjects could have undergone various physiological stressors prior to testing, which are not accounted for by looking simply at genotypes. Each of these identified factors could easily have an impact on the level of expression of genes in a cell, and are not necessarily in response to diet.

20. Even in those instances where applicant is able to account for other variables, and does feed the two groupings different diets, there is not an adequate written description of how one would be able to identify a diet-regulated gene from that which is regulated via some cascade or alternative pathway.

21. At page 9 of the response it is stated: "The claimed invention is the method for identifying certain genes, and not the genes themselves." (Emphasis in the original.)

22. The above argument has not been found persuasive towards the withdrawal of the rejection as the disclosure must provide an adequate written description of how to make and use the claimed invention, which must satisfy the utility requirement. While agreement is reached in that the claimed method is to result in the identification of "diet-regulated diet-associated genes," the disclosure must also teach how the end product is to be used. As seen at page 13 of the response, such utility is to exist in the "identification of potential therapeutics." A review of the disclosure fails to identify where applicant has described the use of any one of these diet-regulated disease-associated genes in the successful identification of any therapeutic agent. While this element may not be recited in the disclosure, it is the ultimate utility of the resultant product. As noted above, 35 USC 112, first paragraph, must provide an adequate written description of how to make and use the invention. Such has not been found in the instant application, and a review of the response fails to find where attention has been directed to such a disclosure.

23. At pages 9-10 of the response argument is presented that Example 18 of the Written description Guidelines "is strongly supportive of the applicant's position, that the invention is adequately described."

24. The above argument has not been found persuasive towards the withdrawal of the rejection. In Example 18, the method was limited to a specific organism, identified by genus and species. In the present case, the "narrow" claim 1 encompasses all possible 5,400 mammals, and an innumerable number of "inbred" strains. Further, in accordance with Example 18, "there are a limited number of ways to practice the process steps of the claimed invention." However, the claimed method can be practiced an infinite number of ways, using an infinite number of

variables. Applicant has not shown, either through their disclosure or through evidentiary submissions, that the findings of one strain in one species is highly correlative to any and all other species of mammals, or in the case of claim 16, any conceivable life form.

25. A review of the disclosure finds where applicant contemplates finding a therapeutic for diseases such as diabetes and cancer. However, the specification ahs not been found to disclose how any of the genes identified by the claimed method, including ESTs that have not yet been associated with any known gene, are used to identify and produce said therapeutic, be it for any disease, identified or otherwise.

26. At page 7 of the response argument is presented that the term "inbred" is an art-accepted term, and to that end a 1989 reference is cited as disclosing "that a strain of mice can be considered 'inbred' at generation F_{20}."

27. It is noted with particularity that the definition provided is relevant to mice. However, the claims are not so limited. Further, the definition provided does not state what would be the lower limit for determining whether an organism, including humans, is inbred.

28. While applicant has provided "a" definition, it is not necessarily the only definition that could be applied. In support of this position, *Cambridge Dictionaries Online* defines "inbred" to be "produced by breeding between closely related plants, animals or people." *Encarta* defines the term thusly: "produced by the mating of closely related individuals or species." In view of these definitions, the fairly encompasses he mating of different species, or within the same species, any number or times. Neither applicant's definition, disclosure, nor the definitions cited by the Office, define what constitutes "closely related." In view of these showings, while the

terms may be used within the art, there is no one set definition that can be applied, and a review of the original disclosure fails to find where applicant has provided one.

29. For the above reasons, and in the absence of convincing evidence to the contrary, claims 1-4 and 16 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

30. Claims 1-4 and 16 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As set forth in *Enzo Biochem Inc., v. Calgene, Inc.* (CAFC, 1999) 52 USPQ2d at 1135, bridging to 1136:

> To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.' " *Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)). Whether claims are sufficiently enabled by a disclosure in a specification is determined as of the date that the patent application was first filed, see *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).... We have held that a patent specification complies with the statute even if a "reasonable" amount of routine experimentation is required in order to practice a claimed invention, but that such experimentation must not be "undue." See, *e.g.*, *Wands*, 858 F.2d at 736-37, 8 USPQ2d at 1404 ("Enablement is not precluded by the necessity for some experimentation . . . However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' ") (footnotes, citations, and internal quotation marks omitted). In *In re Wands*, we set forth a number of factors which a court may consider in determining whether a disclosure would require undue experimentation. These factors were set forth as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. *Id.* at 737, 8 USPQ2d at 1404. We have also noted that all of the factors need not be reviewed when determining whether a disclosure is enabling. See *Amgen, Inc. v. Chugai Pharm. Co.,*

Ltd., 927 F.2d 1200, 1213, 18 USPQ2d 1016, 1027 (Fed. Cir. 1991) (noting that the *Wands* factors "are illustrative, not mandatory. What is relevant depends on the facts.").

31. It is well settled that one cannot enable that which they do not yet possess. As set forth above, the specification does not provide an adequate written description of the invention so as to reasonably suggest that applicant was in possession of the invention at the time of filing.

The quantity of experimentation necessary,

The amount of experimentation necessary to practice the full scope of the claims is vast, requiring many man-years, if not decades, of trial-and-error research, with little, if any reasonable expectation of success.

The amount of direction or guidance presented,

The specification provides an example whereby possible informative genes are identified in specific murine models. No definitive results are provided which show that the genes are in fact "diet-regulated disease-associated polynucleotides." Further, the specification is silent as to how such a gene, even if identified, is used to achieve a product or result that meets the requirements of utility under 35 USC 101 is obtained.

In order to practice the method of claim 2, for example, one is to compare "the diet-regulated disease-associated genes so identified [in claim 1] with an independently-derived set of diet-regulated and/or disease associated QTLs." The specification does not provide the requisite "independently-derived set of diet-regulated and/or disease associated QTLs" for any and all life

forms, such that the comparison can be performed. The situation at hand is analogous to that in *Genentech v. Novo Nordisk A/S* 42 USPQ2d 1001. As set forth in the decision of the Court:

> " '[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.' *In re Wright* 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *see also Amgen Inc. v. Chugai Pharms. Co.*, 927 F. 2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed Cir. 1991); *In re Fisher*, 427 F. 2d 833, 166 USPQ 18, 24 (CCPA 1970) ('[T]he scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.').
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> *****
>
> "Patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable. *See Brenner v. Manson*, 383 U.S. 519, 536, 148 USPQ 689, 696 (1966) (starting, in context of the utility requirement, that 'a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.') Tossing out the mere germ of an idea does not constitute enabling disclosure. While every aspect of a generic claim certainly need not have been carried out by an inventor, or exemplified in the specification, reasonable detail must be provided in order to enable members of the public to understand and carry out the invention. "It is true . . . that a specification need not disclose what is well known in the art. *See, e.g., Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1385, 231 USPQ 81, 94 (Fed. Cir. 1986). However, that general, oft-repeated statement is merely a rule of supplementation, not a substitute for a basic enabling disclosure. It means that the omission of minor details does not cause a specification to fail to meet the enablement requirement. <u>However, when there is no disclosure of any specific starting material or any of the conditions under which a process can be carried out, undue experimentation is required; there is a failure to meet the enablement requirement that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art.</u> It is the specification, not the knowledge of one skill in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement. This specification provides only a starting point, a direction for further research. (Emphasis added)

<u>The nature of the invention,</u>

The invention relates to search for genes that are associated with why individuals become obese as well as develop other diet-associated diseases, such as diabetes. Clearly, this invention relates directly to matters of physiology and chemistry, which are inherently unpredictable and as such, require greater levels of enablement. As noted in *In re Fisher* 166 USPQ 18 (CCPA, 1970):

> In cases involving predictable factors, such as that, once imagined, other embodiments can be made without difficulty and their performance characteristics predicted by resort to known scientific laws. In cases involving unpredictable factors, such as most chemical reactions and physiological activity, the scope of enablement obviously varies inversely with the degree of unpredictability of the factors involved.

The state of the prior art,

While various diet studies have been conducted over the years, there is precious little work done in identifying genes that result in the identification of diet-regulated disease-associated polynucleotides.

The breadth of the claims.

The claims fairly encompass the identification of any and all manner of diet-regulated disease-associated polynucleotides in any life form, be it plant or animal, as well as plants that have been transformed so to express animal genes, or animals that have been transformed to express genes found in unrelated animals. The degree to which the polynucleotide is "associated" with diet-regulated and disease is without limits. Accordingly, genes that are found in a distant cascade of gene function would also be encompassed by the claims.

For the above reasons, and in the absence of convincing evidence to the contrary, claims 1-4 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

Response to argument

32. At pages 10-15 of the response applicant traverses the rejection of claims as it relates to non-satisfaction of the enablement requirement.

33. At pages 10-12, applicant's representative asserts that the steps to be performed do not require any undue experimentation. At page 12 of the response argument is presented that "the specification clearly and explicitly sets out experimentation and results that show that the genes identified as both regulated by diet and associated with a disease state." Attention is directed to paragraphs 76-89 and 90-103.

34. The above argument has been fully considered and has not been found persuasive towards the withdrawal of the rejection. Agreement is reached that paragraphs 76-89 do disclose the feeding regimen used with the two groups of inbred mice. However, there is no showing that the information obtained from this assay does lead to an end product that has utility in a readily available form. To that end, attention is directed to applicant's paragraphs 96 and 97. As stated therein:

> Genes differentially regulated by calorie intake may play a role in the initiation or increased severity of the disease.
> Gene products with differential abundance in each genotype may also alter energy metabolism.

35. Such forward-looking statements of potential roles that they could play do not suggest that applicant had identified any gene from which a useful product has been developed. It is not enough that the assay produces some product for which no known use exists. The product must

have utility. When the product does not have a well-known use, the specification must enable the use of same. Such goes to the heart of the "make and use" requirement of 35 USC 112, first paragraph. In the instant case applicant's representative asserts that the claimed invention is to identify genes, who's utility resides in the development of therapeutics that would treat the disease. No showing has been made where any therapeutic for any disease in any life form has been developed form the findings of the now-claimed assay.

36. At page 12 of the response applicant states: "The method is based on statistically significant quantitative differences in disease susceptibility between two different genotypes (in this case, inbred mouse strains.)"

37. The above argument is not persuasive towards the withdrawal of the rejection as the claims do not require that the differences be statistically significant. Further, the claims are not limited to inbred mouse strains.

38. At page 14 of the response applicant asserts "the QTLs are not themselves part of the invention."

39. This argument is not persuasive as claim 2 explicitly requires the use of QTLs. Further, claim 1 and claims that depend therefrom fairly encompass their use. As noted above, the method of claim 1 fairly encompasses any and all manner of the known 5,400 species of mammals. Applicant has provided but a partial listing of QTLs as they relate to that found in one species of mouse. There is no showing as to how these QTLs correspond to genes in any other life form. Clearly, the identification and application of QTLs for the full genus will require

a considerable amount of research and development, the magnitude of which constitutes undue experimentation.

40. At page 14 of the response applicant asserts: "[T]he method as described and the type of results obtained from practicing the method are entirely reliable and 'predictable.'"

41. As an initial matter, it is noted that the method described, not claimed, controlled for age. Further the method only used male and "virgin female" mice and had mice on a times regimen of feeding.. At paragraph 103 of the disclosure applicant states:

> "The majority of gene products (170 out of 376) were regulated by genotype plus diet interactions."

42. As an initial matter, it is noted that a "majority" is considered to be that greater than 50% of a population. In the instant case, a majority would be greater than 188 of the 376 gene products. A finding of 177 is not a majority, but rather, a minority. Setting this difference of interpretation aside, as seen by this data interpretation, even with these added controls, there were 206 out of 376 gene products (54%) that were NOT regulated by genotype plus diet interactions. Given such a showing, it is more likely than not that the results obtained are NOT regulated by genotype plus diet interactions. If there is in fact an area of predictability of the disclosed assay, it would be that the overwhelming majority of data obtained bears no correlation to variables changed. Such a showing speaks to the inability to readily recognize useful information.

43. As applicant noted at paragraph 109: "Several other genes had more complex regulatory patterns but may play a role in causing differences in subphenotypes of diabesity." Clearly, with a majority of the genes identified not being regulated by genotype plus diet, and the recognition

of "complex regulatory pathways" still not being understood, additional work needs to be done. Further, the aspect of what may, or may not be a relationship speaks directly of how applicant has not enabled the invention as it relates to this one strain of mice, much less enabled any and all manner of mammals (claims 1-4), or that of any life form (claim 16).

44. At paragraph 115 applicant teaches:

> The method and the newly identified diet-regulated disease-associated genes disclosed herein, may be used in a method to determine the susceptibility of an individual to a disease, wherein the disease involves one or more diet-regulated disease- associated polynucleotide identified by the method of the invention. The new method and the newly identified diet-regulated disease-associated genes may be used in a method for monitoring the progression of a disease by screening the individual for the presence and/or expression of a plurality of polynucleotides, and at a second date re- screening the individual for the expression of the same plurality of polynucleotides, wherein a change in polynucleotide expression corresponds to the desirable or undesirable progression of a disease. The invention includes a method for treating a subject so as to reduce the risk of the individual developing a diet-associated disease, by screening the individual and altering the expression of one or more diet-regulated disease-associated polynucleotides, or by altering diet, for example by feeding the individual particular amounts of combinations of nutrients to reduce the risk of the subject developing the disease.

45. At paragraph 118 applicant states:

> The methods disclosed herein, using arrays and other tools, may be used to screen populations to determine the presence and frequency of various diet-regulated disease-associated genes in a population or humans or animals. This information may be used to formulate foods ("medical foods" or "nutraceuticals") that provide enhanced health benefits to various individuals and populations. For example, in-bred breeds of dog, say Labradors, may be analyzed using the methods of the invention, and susceptibility to various diseases, such as diabetes, may be determined. In this case, pet- foods may be formulated for that particular breed of dog to provide particular health benefits and to address this breed's particular needs. The same methods of food formulation may be done for any animals including farm animals, pet animals, and humans.

46. And at paragraph 125 applicant states:

> Even with limitations of the current experiment (type of array, number of mice, single tissue source), the data presented herein identify potential novel candidate genes in many different functional pathways that may play a role in expression of subphenotypes of diabesity. (Emphasis added.)

47. While applicant has identified a plurality of potential uses for the results obtained from the claimed assay, the specification has not been found to enable any one of these uses for any life form, much less humans, as is clearly contemplated in paragraph 118.

48. At page 16 of the response applicant asserts that the Office is in error when stating that the claims encompass al manner of life forms.

49. The above argument is persuasive only as it relates to claims 1-4, which are limited to mammals. Claim 16, however, is not so limited, and does fairly encompass any and al manner of life forms.

50. At page 17 of the response applicant, in response to inquiry as to how one is to control for variables such as race and sex, asserts "the invention require[s] the use of siblings from inbred strains."

51. A review of the pending claims fails to identify where any one claim is limited to the use of siblings.

52. With regard to paragraph 20 of the prior Office action, a question was being raised as to the identification of diet-regulated genes as a result of conducting the claimed assay, and how these gene products had been used to fulfill the intent of the disclosed method. As et forth at paragraph 0011:

> Genomics promises to produce the reagents and tests that will identify each sub-type making it easier to diagnose and properly treat the cause rather than the effect of diseases. The research underlying this disclosure is designed specifically for developing such tests

> and for developing drugs or medical foods formulated to treat the disease. (Emphasis added.)

53. As asserted above, the method is to result in tests that identify genes so regulated, and to use this information in development o foods and therapeutics to treat the various diseases. A review of the disclosure fails to find where these useful end-results have been obtained for any one disease in any one life form, be it a strain of mammals or a strain of any other life form.

54. For the above reasons, and in the absence of convincing evidence to the contrary, claims 1-4 and 16 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

55. Claims 1-4 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific, substantial, and credible asserted utility or a well established utility.

56. The claimed method is to result in the identification of "diet-regulated disease associated polynucleotides." While the method requires "measuring gene expression," it does not require identification of the gene. The disclosure states that these genes so identified are to be used in the development of "drugs or medical foods formulated to treat the disease" (specification at paragraph 011). Paragraphs 115, 118, and 125 provided greater detail as to anticipated end uses. The Office readily agrees that these anticipated end results are specific and substantial, but are not credible. A review of the specification fails to find where any one of these end results has been achieved as a result of practicing the claimed method. Such lack of showing by applicant

does not reasonably suggest that ultimate utility of the invention existed in a readily-available form at the time of filing.

57. It is not sufficient that the method results in the identification of possible genes that may be useful in designing foods and/or therapeutics. The utility must exist in readily available form. A review of the disclosure fails to find where any one gene, identified by the claimed process, has been used to develop any food or disease therapeutic that has been found to have any utility in any life form.

58. It matters not whether the claim is drawn to a product or process; the claim must be drawn to an invention that satisfies the utility requirements as set forth under 35 USC 101 and as further developed in the Utility Guidelines. In support of this position, attention is directed to *Brenner, Comr. Pats. v. Manson*, 148 USPQ 689 (US Sup Ct 1966):

> Whatever weight is attached to the value of encouraging disclosure and of inhibiting secrecy, we believe a more compelling consideration is that a process patent in the chemical field, which has not been developed and pointed to the degree of specific utility, creates a monopoly of knowledge which should be granted only if clearly commanded by the statute. Until the process claim has been reduced to production of a product shown to be useful, the metes and bounds of that monopoly are not capable of precise delineation. It may engross a vast, unknown, and perhaps unknowable area. Such a patent may confer power to block off whole areas of scientific development, 22 without compensating benefit to the public. The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field.
>
> * * *
>
> We find absolutely no warrant for the proposition that although Congress intended that no patent be granted on a chemical compound whose sole "utility" consists of its potential role as an object of use-testing, a different set of rules was meant to apply to the process which yielded the unpatentable product. 24 That proposition seems to us little more than an attempt to evade the impact of the rules which concededly govern patentability of the product itself.

> This is not to say that we mean to disparage the importance of contributions to the fund of scientific information short of the invention of something "useful," or that we are blind to the prospect that what now seems without "use" may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.

59. Acknowledgement is made of applicants asserts that many years and great sums of money have been expended in the search of the causes of various diseases. However, the fact that many years has been spent, and will likely continue to be spent in this endeavor, speaks to the unpredictability of the art, and the fact that ultimate utility has not yet been achieved.

60. Claims 1-4 and 16 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific, substantial, and credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

61. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

62. Claims 1-4 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

63. Claims 1-4 and 16 are indefinite with respect to what constitutes the metes and bounds of "inbred."

64. While applicant has provided a definition, the record produces other definitions of the same term that have widely different meanings. With no clear indication by applicant at the time

of filing as to just what they wish to define the term to mean, the term is subject to interpretation and misinterpretation. Accordingly, the metes and bounds of the term cannot be readily determined.

65. Claim 1 is confusing as it relates to the benchmark to which "more" or "less" are being compared to. Additionally, it is unclear if the difference in susceptibility need be statistically significant.

66. At page 16 of the response applicant states: "To say that one genotype is more susceptible to a disease, and that another genotype is less susceptible to the same disease will generally have a clear meaning to one of skill in the art, as we tend to use strains of mice with great differences in disease susceptibility." (Emphasis added.)

67. It is noted that the argument provided has not been supported by any evidentiary showing. Attention is directed to MPEP 2145.

> Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art.
> The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.

68. Further, the aspect of what applicant "tends to use" is not dispositive of the issue at hand. Even if it had some weight, the very terms applied in the statement raise further issues of clarity as it is not readily apparent just what the metes and bounds of "great differences" as the term "great" is a relative term.

69. Attention is also directed to page 9 of the response of July 11, 2005, wherein applicant admits that the cross-strain comparison of disease susceptibility is "rarely if ever defined."

70. It less than clear how the public is to determine the metes and bounds of a claim which requires comparisons to a standard that is admittedly "rarely if ever defined," and, perhaps more importantly, is not defined presently.

71. For the above reasons, and in the absence of convincing evidence to the contrary, the rejection of claims 1-4 and 16 under 35 USC 112, second paragraph, is maintained.

Conclusion

72. Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Bradley L. Sisson/ whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

73. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

74. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley L. Sisson/
Primary Examiner
Art Unit 1634

BLS